DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 11/1/2004 fails to comply with MPEP § 609 and the 37 CFR 1.98, which requires to include a legible copy of each cited foreign patent document. It has been placed in the application file, but the information referred to therein has not been considered as to the merits.

Claim Objections

2. Claims 11 and 13 are objected to because of the following informalities: the word "during" in claims 11 and 13 should be replaced with "duration". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1- 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Tachibana et al (U.S. 5,961,919).

5. Regarding claim 1, Tachibana et al teach a deodorizing and sterilizing device. The device comprises: (1) an ozone generating unit (reference 1 in Figure 1; col. 2, line

38); (2) an ozone sensor (reference 4 in Figure 1; col. 2, line 53); and (3) a control unit (reference 53 in Figure 2; col. 2, line 59).

6. Regarding claim 2, Tachibana et al teach the control portion 53 (in Figure 2) controls the ozone generator 1 (in Figure 1) according to the signal from the calculating portion 52 (col. 3, line 30 – 32). Tachibana further discloses that the ozone generator operates through switching between continuous time and stopping time (col. 3, line 66 – 67) and at an allowable upper limit concentration (col. 3, line 64 – 65), reads on " the control unit controls the ozone generating unit such that the ozone is generated through switching operation of the ozone generating unit at a predetermined ON/OFF period and thus the concentration of ozone in the target space can reach a predetermined concentration of ozone for deodorization of sterilization" as claimed.

7. Regarding claim 3, Tachibana teaches that ozone discharge is stopped when the concentration of ozone becomes not less than the allowable upper limit (col. 3, line 6 – 9), reads on "if the concentration of ozone detected by the ozone sensor exceeds a predetermined concentration, the control unit stops the operation of the ozone generating unit" as claimed.

8. Regarding claim 4, Tachibana discloses a signal processing unit 5 (in Figure 2) including a calculating portion 53 (in Figure 2). The signal processing unit measures time T_0 and time T_1, then calculates interval ($T_1 – T_0$) (col. 4, line 15 - 25). With respect to calculating the size of the space, a proper calculating means would convert an operating time, a switching period and an ON time ratio to the required parameters. Moreover, the calculating portion 53 in Tachibana's device would perform the task to

accommodate the user's preference and the intended use. Therefore, Tachibana teaches "a logic circuit unit for calculating the size of the target space by calculating one of more of data on an operating time, a switching period and an ON time period" as claimed.

9. Regarding claim 5, Tachibana teaches a memory portion 51 (in Figure 2). The memory portion disclosed by Tachibana is fully capable of storing the size of the target space and predetermined operating condition data. The intended use of the memory portion would be accommodated according to the user's preference.

10. Regarding claim 6, Tachibana teaches the air deodorizing and disinfecting treatment continues under the normal operation while the ozone generator stops discharging ozone when the treatment is completed (col. 3, line 33 – 40), reads on "if the operation of the ozone generating unit is completed, the control unit performs for change of the operating mode to the standby mode" as claimed.

11. Regarding claim 7, Tachibana teaches to calculate a detecting interval (T1 - T0) which is the time from a start point to when the concentration of ozone becomes not less than the allowable upper limit (col. 4, line 22 – 25). Tachibana further teaches that the control unit controls the ozone generating unit in such manner that the ozone generator stops if the detection interval is shorter than the standard detection interval, and if a similar tendency is recognized a predetermined number of times (col. 3, line 36 – 40), reads on "the logic circuit calculates data on a time T_p and the control unit controls the ozone generating unit such that the time ration is decrease if the ratio of T and T_p is below a predetermined value" as claimed.

12. Regarding claim 11, Tachibana describes setting conditions including concentration of ozone (0.05 ppm), ozone generating duration time (3min.) and air volume (500 m^3), reads on "operating condition data include one or more of data on the concentration of ozone, on ozone generating duration time, and air volume" as claimed.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 8 – 10, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tachibana et al (U.S. 5,961,919) in view of McMurray (U.S. 5,788,930), and in further view of Hegnauer (U.S. 6,380,882).

17. Regarding claim 8, Tachibana does not teach a human body sensor. However, McMurray discloses an apparatus for purifying an environment using ozone generation. The apparatus comprises a motion sensor (reference 28 in Figure 1) connected with a microprocessor (reference 20 in Figure 1; col. 4, line 39 – 43). A microprocessor includes a logic circuit unit that is capable of calculating sensor signal generated from the motion sensor (i.e. human body sensor). Moreover, a logic circuit unit is also able to calculate data on the distance from the sensor to the human body or data on the frequency of detecting the human body. This is supported by Hagnauer's teaching. Hagnauer discloses a motion detector based on Doppler principle. Hagnauer further suggests that a passive infrared detector (reference 2 in Figure 1) is able to measure and determine the distance (r) and the frequency (proportional to the radial velocity v) of moving objects (col.4, line 50 – 53). Therefore, it would be obvious for one having ordinary skill in the art at the time of the invention to include a human body sensor of McMurray in Tachibana' system in order to safeguard the enclosure during the purification when the entry of a human into the environment is detected in the light of the teaching of McMurray (col. 3, line 10 – 13).

18. Regarding claim 9, as discussed above, with the teaching and support of Hagnauer, the logic circuit unit disclosed by McMurray would be fully capable of functioning to calculate the activity of human body by using the calculated data on distance and frequency. Furthermore, with respect to claim 12, the activity of human body does not further limit the cited structure as claimed in claim 9. Therefore, it would be obvious for one having ordinary skill in the art at the time of the invention to include a human body sensor of McMurray utilizing the function taught by Hagnauer in Tachibana' system in order to safeguard the enclosure during the purification when the entry of a human into the environment is detected in the light of the teaching of McMurray (col. 3, line 10 – 13).

19. Regarding claim 10, the control unit in Tachibana's system would be able to control the operation of ozone generating unit according to the activity of human body when the motion sensor and the logic circuit unit of McMurray was added in the system disclosed by Tachibana. Therefore, it would be obvious for one having ordinary skill in the art at the time of the invention to include a human body sensor of McMurray utilizing the function taught by Hagnauer in Tachibana' system in order to safeguard the enclosure during the purification when the entry of a human into the environment is detected in the light of the teaching of McMurray (col. 3, line 10 – 13).

20. Regarding claim 13, Tachibana describes setting conditions including concentration of ozone (0.05 ppm), ozone generating duration time (3min.) and air volume (500 m3), reads on "operating condition data include one or more of data on the concentration of ozone, on ozone generating duration time, and air volume" as claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIUYU TAI whose telephone number is (571)270-1855. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mikhail Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Xiuyu Tai

1/15/2008

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